

SHARON STATION ROAD BRIDGE  
(Connecticut Bridge No. 05191)  
Sharon Station Road spanning Webatuck Creek  
Sharon  
Litchfield County  
Connecticut

HAER No. CT-161

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service  
Northeast Region  
Philadelphia Support Office  
U.S. Custom House  
200 Chestnut Street  
Philadelphia, PA 19106

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## HISTORIC AMERICAN ENGINEERING RECORD

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HAER No. CT-161

**Location:** Sharon Station Road spanning Webatuck Creek  
Sharon, Litchfield County, Connecticut

USGS Quadrangle: Sharon, Connecticut  
UTM Coordinates: 18.624940.4637825

**Date of Construction:** 1885, Engineered by Berlin Iron Bridge Company, Berlin, CT which became part of the American Bridge Company of New Jersey in 1900.

**Present Owner:** Town of Sharon, CT

**Present Occupant:** Town of Sharon, CT

**Present Use:** Vehicular and pedestrian bridge

**Significance:** One of few surviving examples of the Berlin Iron Bridge Company's distinctive lenticular truss bridges. It is important locally because of its association with the Sharon Valley Industrial Complex. It is listed in the Sharon Valley Historic District, nominated to the National Register of Historic Places in 1982.

**Project Information:** Memorandum of Agreement between the Town of Sharon and Connecticut State Historic Preservation Officer mandated recording of present structure prior to extensive reconstruction of structure.

Dr. Frederic Warner  
Connecticut Archaeological Survey  
Box 445  
New Hartford, CT 06057  
May 5, 1996

## 1. Physical History and Description of the Bridge

The bridge was built in 1885. It was almost certainly a replacement for an earlier bridge used to transport materials and products from an iron furnace and lime kiln just west of Sharon Valley Village, although no record of an earlier bridge was located. The present bridge was originally a single 35 foot span truss bridge fabricated by the Berlin Iron Bridge Company. The trusses are three panel wrought iron pinned joint trusses. The actual erection was done by the Town of Sharon, using locally obtained materials for the abutments and deck planking along with the prefabricated trusses purchased from the bridge company for \$550.00. After a flood in 1955 washed the deck away and damaged the east abutment, the bridge was almost completely reconstructed, replacing the original cut stone east abutment with a concrete abutment and installing 18" steel I-beams to carry the entire bridge load. The lenticular trusses were removed, sway braces welded to them, and re-installed as guard rails, which is how the trusses function at this time.

The trusses are significant because of their distinctive lenticular design. Several truss designs, mostly variations of the Parker truss, use a curved or arched top chord to give added strength to the bridge, but the lenticular design is unique in that the bottom chord is a mirror image of the top chord, resulting in a biconvex, or lens shaped, truss. Although the Berlin Iron Bridge Company did occasionally fabricate bridges using other truss styles, it is the lenticular for which they are best known. The 1878 patents for this design were purchased from William Douglas by the Corrugated Metal Company, which then added the construction of bridge trusses to its main product line, the manufacture of corrugated roofing and supporting trusses. However, manufacture of these lenticular trusses soon became the central part of the Company's work, and in 1883 the Company was renamed the Berlin Iron Bridge Company. Using approximately 10 percent less iron than the more common Warren and Pratt trusses, the design was popular with many municipalities. There were more than one hundred of these bridges in Connecticut alone and, by the mid-1890's the Berlin Company was the largest fabricator of iron structures in New England. In 1900 the American Bridge Company bought the Berlin Iron Bridge Company, along with twenty-three other bridge companies, but lasted less than a year as an independent concern before becoming a subsidiary of US Steel in 1901.

In the Berlin lenticulars the web verticals were usually four angles with strap lacing, often tapered to fit inside the top chord. The bottom chord was normally constructed with rectangular section bars, unless the bridge span was under 40 feet, as the Sharon Station Road Bridge is. In these shorter bridges, the end panel bottom chord is made up of two loop-welded eyebars pinned at the bottom of the web vertical and brought up through an iron box at the top of the end post, where they are held in place by two large nuts. It is this upward sloping chord which gives the bridge its distinctive profile.

As originally constructed, the Sharon Station Road Bridge was a pony truss bridge, meaning that there were no lateral braces between the top chords. The height of the trusses is approximately 8 feet and the bridge sits about 12 feet above Webatuck Creek. Since the bridge was totally reconstructed in 1956, it is not known what the original roadway width was

but, because the west abutment is still in place, the original bridge width was probably close to the present 20'-8" width. The bridge has a 33° skew. The 6 foot end posts are built-up members with two sets of paired angles joined by a continuous plate on the outside and lacing bars on the inside. The top chord is similar, with stay plates replacing the lacing bars. The center panel bottom chords are made up of two pairs of back-to-back angles connected by lacing, as are the verticals. These construction details are typical of the shorter span lenticular bridges of the Berlin Iron Bridge Company.

There were two major disadvantages to the lenticular design: 1) because each bridge brought the end panel chords together at different angles, the machining specifications varied for each bridge, and 2) the lateral loading stability of the truss at roadway level was minimal. The lateral loading stability problem was partially solved by a second patent taken out in 1885 which added a stabilizing strut from the bottom of the end post to the first panel point and connected these with tension rods under the roadway. The 1956 reconstruction of the Sharon Station Road Bridge would have removed any such rods in the original bridge, but there is no evidence of any struts having been removed and it is highly unlikely that there ever were any on such a small bridge.

## 2. History of the Crossing

This bridge is closely associated with the development of the surrounding community. Sharon Valley was originally settled in the 18th century as a farming village, and the areas along Webatuck and Indian Lake Creeks were initially developed for the water power needed for both saw and grist mills. Gradually other small industries were established, including a carriage works, a tinware and stove maker, and a woodworking shop. In 1825 Lyman Bradley built a blast furnace just above the present bridge. By 1837 this furnace was making 800 tons of pig iron annually and the twelve man work force was the largest in the area. Using iron ore from the Indian Mine two miles north of the furnace, local limestone, and charcoal from the neighboring forests, production was increased to 1300 tons a year by 1854 and supplied pig iron to local foundries, to the Ames Works in Falls Village, and to the Eddie Works in Troy, New York. In 1863 the furnace was rebuilt as a hot blast furnace and production was increased to 2240 tons per year and ore was being brought in from the Salisbury mines as well. In 1873 the Sharon Valley Iron Company took over operation of the furnace and was manufacturing iron for railroad car wheels, some of which were sold to railroads as far away as the Union Pacific. Apparently the Sharon Valley Iron Company was quite successful in its operations, building a number of worker's houses in the vicinity, some of which have survived and are included in the local historic district. It was during this period of relative affluence that the Sharon Station Road Bridge was constructed. In 1898 the Barnum, Richardson and Company purchased the Sharon Valley Iron Company and soon closed the furnace.

The second major industrial concern in Sharon Valley was started in 1829 by Asahel Hotchkiss as a hardware and iron works. Combining operations with other local businesses, the Company built a large factory at the southern edge of the Village and by 1860 was

employing 87 people. Most of the hardware being made was agriculturally oriented - bridles, shaft couplings, hasps, traps, etc. Later Andrew Hotchkiss invented the exploding artillery shell and the Company began to manufacture these shells, using local iron. Use of these shells during the Civil War was successful enough for the Hotchkiss Company to outgrow the Sharon factory and move its operations to Bridgeport. There were several other malleable iron works in the Village; however, and these prospered during the third and fourth quarters of the 19th century. Many of the industrial establishments in the Valley which relied on local iron closed when the lime kiln and iron furnace were shut down about 1900.

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